

PRODUCT DATASHEET



NULA Mini ESP32-C6

333356

The NULA Mini ESP32-C6 is a compact IoT development board with WiFi 6, Bluetooth 5.3, and multi-protocol support for versatile applications.

Full product documentation, files and tutorials: solde.red/333356

CORE ATTRIBUTES

SKU **333356**WEIGHT **5 g**BARCODE **732388644001**

DESCRIPTION

Start IoT and wearables development with the ultra-compact **NULA Mini ESP32-C6**, featuring WiFi 6, Bluetooth 5.3, and Thread/Zigbee connectivity in a breadboard-compatible 25.33×25.33mm form factor. Built around Espressif's powerful **ESP32-C6-MINI-1-N4**, this board delivers wireless capabilities with power efficiency. Perfect for smart home nodes, IoT sensors, and battery-powered devices requiring wireless protocols, this board combines the latest connectivity standards with maker-friendly features like **Qwiic** connectors and **Arduino**, **MicroPython** and **ESP-IDF** support.

Engineered for both prototyping and production deployment, the NULA Mini features **512KB** high-performance SRAM, **4MB** Flash memory, and **6** versatile **GPIO** pins supporting UART, SPI, I2C, PWM, and 12-bit ADC functions. Due to its small footprint, it's very convenient for breadboard prototyping. The integrated **Qwiic/STEMMA QT** connector enables tool-free sensor integration, while the **JST** battery connector with onboard power management supports 3.7V Li-Ion batteries for portable applications. **Ultra-low** power consumption with hardware security features, including secure boot, flash encryption, and hardware crypto engines makes this ideal for professional IoT deployments requiring both performance and security. A **USB-C to USB-C** cable is included in the package, so you can start programming right out of the box.

This board represents the perfect balance of **advanced** wireless capabilities and maker **accessibility**, supporting **WiFi 6** efficiency, **Bluetooth** mesh networking, and **Thread/Matter** compatibility for future-proof IoT projects. The breadboard-compatible design with bottom-mounted ESP32-C6 maximizes prototyping space while **LEGO-compatible** mounting holes enable secure project integration. Complete open-source hardware design with documentation ensures unlimited customization possibilities for both hobbyist and professional applications.

TECHNICAL DETAILS

- Easily program and get started using Arduino and MicroPython

- **WiFi 6 Connectivity:** Integrated 802.11ax for high-efficiency, low-latency IoT applications.
- **Bluetooth 5.3 LE:** Supports mesh networking, long-range, and high-speed data transfer.
- **Thread/Zigbee Ready:** IEEE 802.15.4 radio for Matter-compatible smart home devices.
- **Single-Core RISC-V CPU:** 32bit, 160MHz
- **Ultra-Low Power:** 7µA deep sleep mode for extended battery life.
- **Integrated Battery Management:** Onboard JST connector and charger for 3.7V Li-Ion batteries.
- **Qwiic/STEMMA QT Connector:** Plug-and-play connectivity for a wide range of sensors.
- **Hardware Security:** Secure boot, flash encryption, and cryptographic hardware acceleration.
- **Compact Form Factor:** Breadboard-friendly design at just 25.33×25.33mm.
- **Multi-Protocol Operation:** Concurrent WiFi, Bluetooth, and Thread/Zigbee communication.
- **Ample Memory:** 4MB Flash and 512KB SRAM for complex applications.
- **USB-C for Power and Programming:** Modern, robust connector for data and power.

SPECIFICATIONS

MCU PART NUMBER	ESP32-C6-MINI-1-N4
MCU CLOCK (MHZ)	160 MHz
SRAM (KB)	512 KB
FLASH (MB)	4 MB
WIFI	Wifi6
BLUETOOTH	Ble 5 3
WIRELESS MODULE	ESP32-C6-MINI-1-N4
QWIIC COMPATIBLE	Yes
BREADBOARD COMPATIBLE	Yes
BATTERY CONNECTOR	Jst 2Pin
ONBOARD BATTERY CHARGER	Yes
LOGIC LEVEL	3V3
SLEEP CURRENT UA	7
DEV ENVIRONMENTS	Arduino IDE, MicroPython, ESP-IDF

LINKS

Full Documentation	https://docs.soldered.com/nula-mini-esp32-c6/overview/
Hardware Details	https://docs.soldered.com/nula-mini-esp32-c6/hardware/
Pinout	https://cms.soldered.com/products/333356/media/333356_pinout-png_ef8c44.png

GALLERY

